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Fresh microgreens — Specification

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 652 was prepared by Technical Committee RSB/TC 016, Fresh fruits and Fresh vegetables.

The assistance derived from the above source is hereby acknowledged with thanks.

Committee membership

The following organizations were represented on the Technical Committee on Fresh fruits and Fresh fruits (RSB/TC 016) in the preparation of this standard.

Paragraph of participants

El Amor Garden Centre

Gatsibo Food Processing Company Ltd

Global Harmonization Initiative (GHI)

Ishyo Foods Ltd

National Agricultural Export Development Board

National Industrial Research and Development Agency

Rwanda Agriculture and Animal Resources Development Board

Rwabuye Rice Ltd

Skai Foods Ltd

University of Rwanda – College of Agriculture, Forestry and Food Sciences

Rwanda Standards Board (RSB) – Secretariat

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Fresh microgreens — Specification

1 Scope

This Draft Rwanda Standard specifies requirements, sampling and test methods for fresh microgreens intended for human consumption

This standard applies to microgreens produced in soil, other growing media or soilless systems and supplied as fresh produce.

This standard does not apply to sprouts, mature vegetables, baby-leaf vegetables, herbs sold in mature form, or fresh microgreens sold as planting material.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

RS CXC 1, *General principles of food hygiene*

RS CXC 53, *Code of hygienic practice for fresh fruits and vegetables*

RS CXS 193, *General standard for contaminants and toxins in food and feed*

RS EAS 12, *Potable water — Specification*

RS EAS 38, *Labeling of packaged foods – General requirements*

RS ISO 874, *Fresh fruits and vegetables – Sampling*

RS ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella Part 1: Detection of Salmonella spp.*

RS ISO 16649-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

RS ISO 11290-1, *Microbiology of the food chain — Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp.Part 1: Detection method*

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3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1

microgreen

young edible seedling of a vegetable, herb, cereal or other food crop, harvested usually 7 to 21 days after germination when the cotyledons are fully expanded and before, or when, the first true leaves have emerged, whose edible portion consists of the stem, the cotyledons and, where present, the first true leaves, excluding roots and seed.

Note: Microgreens may be harvested or live.

3.2

sprout

germinated seed consumed with its root, seed and shoot, produced by germinating seeds in water or a humid environment, usually without a growing medium, and harvested before the true leaves develop

3.3

baby-leaf vegetable

young leaves of a leafy vegetable harvested at a later stage of development than microgreens, after several true leaves have developed

3.4

cotyledon

seed leaf; first leaf, or one of the first pair of leaves, formed by the embryo of a seed plant

3.5

true leaf

leaf formed after the cotyledons, having the shape characteristic of the mature leaf of the species

3.6

trimmed microgreens

microgreens harvested by cutting above the surface of the growing medium and supplied without roots, seed or growing medium

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3.7

untrimmed microgreens/

live microgreens

microgreens supplied growing in their original growing medium or container.

3.8

growing medium

soil or other substrate in or on which seeds are germinated and microgreens are grown

3.9

microgreens blend

mixture of two or more microgreens species.

3.10

lot

quantity of microgreens of the same species or blend, grown, harvested and packed under practically the same conditions at the same time and identified by a common code

3.11

seed hull

seed coat remaining attached to the cotyledons or present loose in the product

4 Description

4.1 Microgreens are produced from the seeds of a wide range of vegetables, herbs, cereals and other food crops. At harvest, they consist of a stem with fully expanded cotyledons, with or without partially expanded first true leaves.

4.2 At harvest, microgreens are usually 2 to 8 cm in height, depending on the species, and are characterised by intense flavour, tender texture and vivid colour.

4.3 Microgreens are harvested 7 to 21 days after germination, a stage of development between that of sprouts and that of baby-leaf vegetables.

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5 Classification

5.1 Fresh microgreens are classified according to the botanical family of the species from which they are produced. Commonly used families and species include, but are not limited to, the following:

- **Brassicaceae (Cruciferous family):** Broccoli, kale, radish, arugula, cabbage, mustard, and watercress.
- **Amaranthaceae (Amaranth family):** Red beet, Swiss chard, quinoa, and amaranth.
- **Asteraceae (Composite family):** Sunflower, lettuce, chicory, and radicchio.
- **Apiaceae (Umbellifer family):** Cilantro, parsley, celery, and dill.
- **Fabaceae (Legume family):** Peas, chickpeas, and alfalfa.
- **Amaryllidaceae/ Alliaceae (Alliums):** Garlic, onion, leeks, and chives
- **Lamiaceae (Mint family):** Basil, chia, and lemon balm.
- **Poaceae (Cereal family):** Wheatgrass, corn, and barley.
- **Polygonaceae (Buckwheat family):** Buckwheat and sorrel
- **Malvaceae (Mallow family):** Roselle and jute mallow
- **Portulacaceae (Purslane family):** Purslane

5.2 Fresh microgreens may be presented as trimmed microgreens or untrimmed (live) microgreens, and as single-species microgreens or microgreens blends.

5.3 Fresh microgreens shall only be from species that are safe for human consumption at the seedling stage.

6 Requirements

6.1 Fresh microgreens shall be:

a) of a single species or, where sold as a blend, correctly identified as a blend of named species;

b) fresh in appearance, with turgid stems and leaves;

c) of characteristic colour for the species and cultivar

d) free from abnormal external moisture, other than condensation following removal from cold storage;

e) free from any foreign smell and/or taste

f) practically free from visible moulds growth

g) practically free from decay, rot, or slime;

h) free from pest damage affecting the edible portion;

i) clean, practically free of any visible foreign matter

j) practically free from pests

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k) free from seedlings of species other than those declared, in particular weeds;

l) in the case of trimmed microgreens, practically free from seed hulls, roots and growing medium;

m) free from damage caused by low or high temperatures, such as yellowing, wilting or water-soaking;

n) sufficiently developed to show the characteristic form of the microgreen (cotyledons fully expanded), but harvested before the plant has progressed to the baby-leaf stage.

o) sound; produce affected by rotting or deterioration such as to make it unfit for consumption shall be excluded

6.2 Trimmed microgreens shall be cut cleanly above the surface of the growing medium so that no roots, seed or growing medium adhere to the product.

6.3 Untrimmed (live) microgreens shall be supplied in clean growing medium that is free from visible mould, pests and foreign matter.

6.3 The development and condition of fresh microgreens shall be such as to enable them:

a) to withstand transportation and handling

b) to arrive in satisfactory condition at the place of destination.

6.4 Seeds used for the production of microgreens shall be suitable for the production of food for human consumption, shall be free from chemical seed dressings and shall be traceable to the seed lot. Where appropriate, seeds shall be tested for pathogens or disinfected before sowing, following the provisions for seeds in RS CXC 53.

6.5 Water used for soaking seeds, for irrigation, for nutrient solutions and for any washing of microgreens shall be of potable quality complying with RS EAS 12.

6.6 Growing media shall be clean, stored so as to prevent contamination and not reused. Raw manure and untreated organic amendments shall not be used.

7 Contaminants

7.1 Heavy metals

Fresh Microgreens shall comply with the maximum levels for heavy metals established by the Codex Alimentarius Commission in accordance with RS CXS 193 for the corresponding leafy vegetable or herb commodity.

7.2 Pesticide residues

Fresh microgreens shall comply with those maximum pesticide residue limits established by the Codex Alimentarius Commission for the corresponding leafy vegetable or herb commodity.

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8 Hygiene

8.1 Fresh microgreens shall be prepared and handled in accordance with RS CXC 53 and RS CXC 1

8.2 Fresh microgreens shall be free from parasites or substances originating from them in amounts which may present a hazard to human health.

8.3 Fresh microgreens shall comply with the microbiological limits given in Table 2.

Table 2 — Microbiological limits for microgreens

S/N	Microorganism	Limit	Test method
i.	Escherichia coli per g	Absent	RS ISO 16649-2
ii.	Salmonella spp. in 25 g	Absent	RS ISO 6579-1
iii.	Listeria monocytogenes in 25 g	Absent	RS ISO 11290-1

9 Provisions concerning presentation

9.1 Uniformity

9.1.1 The contents of each package shall be uniform and contain only microgreens of the same origin, variety or commercial type, and quality. Microgreens blends shall be uniform in composition throughout the package

9.1.2 The visible part of the contents of the package shall be representative of the entire contents

9.2 Packaging

Fresh microgreens shall be packaged in a container made from food-grade packaging material and sealed in a manner which safeguards the hygienic, nutritional, technological and organoleptic qualities of the product throughout the shelf life of the product.

10 Labeling

In addition to the requirements of RS EAS 38, each package shall bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside:

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a) Name of the product as “Microgreens” followed by the common name of the species (e.g. “Radish Microgreens”, or, for mixtures, “Microgreens Blend”) together with a list of the species included, in descending order of proportion;
b) Name of the producer / Packer and/or dispatcher/exporter;
c) Name and physical address of the producer, packer, distributor, importer, or vendor;
d) “Trimmed microgreens” or “Untrimmed microgreens” if the contents are not visible from the outside
e) Country of origin
f) Date of harvest and/or date of packing
g) Net content;
h) Lot identification;
i) Use-by date;
j) Storage instructions;
k) Instructions for use.

11 Sampling

Sampling of microgreens shall be done in accordance with RS ISO 874.

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